

# Glenn Research Center, Environmental Programs Manual

## Chapter 3 – WATER POLLUTION CONTROL

**NOTE:** This new Chapter is created, maintained and approved by the Safety, Health and Environment Division (SHED). The last revision date of this chapter was January 2008. The current version is maintained on the Glenn Research Center intranet at <http://smad-ext.grc.nasa.gov/shed/pub/epm/epm-manual.pdf>. Approved by: Environmental Management Branch (EMB) Chief, Priscilla Mobley

### PURPOSE

This chapter provides the policies and requirements for design, construction, modification, and operation of Glenn Research Center (GRC) facilities contributing waterborne wastes to the sanitary, storm, and industrial waste systems. The provisions herein are in accordance with the national efforts to improve water quality through prevention, control, and abatement of water pollution from Federal activities in the United States.

### APPLICABILITY

This chapter is applicable to all personnel at Lewis Field and Plum Brook Station (PBS) including, but not limited to, civil servants, contractor personnel, and students.

### DEFINITION

**IWS** Industrial Waste Sewer: The IWS is not a chemical treatment facility. It is a separate drainage system, apart from the storm and sanitary sewer systems, which contains holding basins to allow for the separation of water and oil so proper disposal can be accomplished. The industrial waste sewer system discharges to the sanitary sewer system.

### BACKGROUND

Section 402 of the Clean Water Act (CWA) established an effluent permit system known as the National Pollutant Discharge Elimination System (NPDES). The NPDES constitutes the nation's central mechanism for controlling pollution of waterways and lakes. Under the CWA, it is illegal for any person, including Federal agencies, to discharge pollutant from a point source without a permit.

#### Permits

National Pollution Discharge Elimination System (NPDES)

Lewis Field and Plum Brook operate under separate NPDES water discharge permits issued by the Ohio EPA. The permits specify the discharges that are allowed, pollutant limitations, and the monitoring and reporting requirements. The Environmental Management Branch (EMB) performs reporting and monitoring. Any discharge not allowed under these permits is a violation of the CWA.

Storm Water Permit

The Lewis Field facility has received a permit to discharge storm water runoff. Please reference the Environmental Programs Manual, [Chapter 27](#) for Storm Water Control for further information. At Lewis Field and Plum Brook Station, stormwater Construction Permits are required for any construction project which disturbs over one acre of land.

Plum Brook Station is located outside the boundaries of the Sandusky, Ohio urbanized area, therefore, PBS is not subject to NPDES requirements for MS4. In addition, as a research facility, PBS is not required to obtain NPDES coverage under 40 CFR 112.26 for storm water discharges associated with industrial activities.

## **POLICY**

It is Glenn policy that the design, maintenance, operation, and changes to the Lewis Field and Plum Brook sewer systems be planned, controlled, and monitored in a manner that assures that environmental pollution regulations will not be violated.

## **REQUIREMENTS**

### Design and Construction

All facilities shall be designed and constructed in accordance with the criteria and standards set forth in the authorities cited above. All facilities shall comply with local, State, and Federal regulations and codes applicable to the collection, transmission, and disposal of waterborne wastes contributing to the sanitary, storm, and industrial waste systems. When the possibility of an accidental release of contaminated waste exists, adequate safeguards shall be included in such designs. Due consideration shall be given to effluent limits established for release to adjacent creeks or rivers and to municipal sewage systems.

Control or treatment facilities may be required in order to prevent such accidental or normal releases.

The environmental impact and assessment of design, construction, and modification activities shall be evaluated in the initial planning stages. Requirements governing the preparation and review of assessments of the environmental impact of GRC activities are contained in [Chapter 2 National Environmental Policy Act](#), of this manual.

All designs for new facilities and modifications to existing facilities where connections are to be made to any GRC waterborne waste disposal system shall be submitted for review, evaluation, and approval of the EMB and the Facilities Division System Manager. The approval, documented by approval of a Facilities Change Request as outlined in GRC – P7010.002 “Configuration Control of Facilities”, must be obtained before procurement, installation, or modification is begun.

Violations of design or construction requirements or water pollution control standards should be reported to the Chief of FD for evaluation and corrective action.

## **OPERATION AND MAINTENANCE**

### Facilities

Facilities will be operated and maintained to achieve compliance with the standards described in the paragraph under Requirements for Design and Construction.

The Lewis Field and Plum Brook Station sewer systems will be operated and maintained to satisfy the following intended purposes:

Storm sewer system - Surface and subsurface rainwater runoff, e.g., from roadways, parking lots, roof drains, and yard basins.

Industrial Waste Sewer (IWS) system (Lewis Field only). Waste waters containing oil and grease. Lewis Field attempts to minimize the discharge of pollutants at each entrance to the IWS. Many of the buildings that generate wastewater containing petroleum products have oil separators that remove floating and settleable materials before entering the IWS system. Contamination of this system with solvents and other chemicals violates the proper and intended use of the IWS.

IWS wastewater discharges to a sanitary sewer system.

Sanitary sewer systems - Domestic type sewage and gray water originating at standard plumbing fixtures and laboratory sinks.

Radioactive Wastes - All contaminated wastewater that contain radioactive materials will be disposed of in accordance with applicable Ohio EPA and U.S. NRC regulations and licenses and requirements of the Midwest low-level Radioactive Waste Disposal Compact. In Cleveland, the Health Physics Team will control the disposal of radioactive wastes. At Plum Brook, radioactive waste disposal will be controlled in accordance with established Plum Brook Reactor storage license requirements and procedures approved by the GRC Radiation Safety Officer.

#### UTILITY MANHOLE:

Rainwater and/or groundwater accumulated in a utility manhole that is free from oil sheen, odor, color, debris, and sediment can be discharged to a storm sewer. An evaluation of water must be made prior to discharge.

A competent person who is responsible for the project should do an evaluation. Contact EMB if assistance is needed on the evaluation and/or oil sheen, odor, color, debris, and sediment are detected in the water. During the discharge if any oil sheen, odor, color, debris, and sediment are detected, secede the discharge and contact EMB immediately.

#### CONSTRUCTION SITE:

Best Management Practice must be planned and implemented at construction sites to eliminate sediment discharge to storm sewers.

Accumulation of rainwater in the excavation site should be avoided. In the event rainwater is accumulated in the excavation site, the proper dewatering is needed.

For an excavation site where the soil is clean, accumulated rainwater with sediment control must be pumped to the storm sewer.

For an excavation site where the soil is a solid or hazardous waste, accumulated rainwater must be tested based on the contaminants of soil. The rainwater will be handled accordingly upon analytical results as recommended by EMB.

#### COOLING TOWER:

It is the policy of EMB that cooling tower maintenance will be performed in a manner that complies with all relevant laws and regulations. In order to implement this policy, EMB recommends that prior to cooling tower maintenance activities, EMB be notified in advance to establish proper procedures.

### **RESPONSIBILITIES**

#### All Employees

Each employee is responsible for assuring no release of toxic or hazardous materials or reportable quantities of other materials to the sanitary, storm, and industrial waste sewer systems.

Any person who becomes aware of any spill, or the inadvertent or unauthorized release of toxic or hazardous materials to any GRC sewer system, shall report the incident by dialing 911, the Glenn Dispatch for Lewis Field and the Comms Center for Plum Brook Station.

All facilities shall comply with the local, State, and Federal regulations and codes applicable to the collection, transmission, and disposal of waterborne wastes to sanitary, storm, and industrial waste sewer systems.

#### Environmental Management Branch (EMB)

EMB sets Glenn environmental pollution standards based on the requirements of local, State, and Federal regulations and permits. EMB updates these standards as required by changes in such regulations and permits. At Plum Brook Station, questions concerning application of standards should be directed to the Plum Brook Station Environmental Manager.

EMB defines a sampling and testing program to monitor wastes in the sewer systems, the purpose of which is to detect, control, and eliminate pollution. At Plum Brook, the PBMO, in consultation with the Plum Brook Station Environmental Manager, is responsible for assuring that the appropriate sampling and testing programs are conducted.

EMB is the focal point for the submission for applications of all water permits. EMB maintains the Lewis Field and Plum Brook Station National Pollution Discharge Elimination System (NPDES) permits, and monitors according to the specifications included in the permits.

EMB coordinates with outside agencies as appropriate.

EMB provides technical direction for the operation of the sewer systems and carries out the sampling and testing programs. EMB provides requesters with waste disposal technology information, analytical chemistry, and monitoring metrology for handling and disposing of wastewater.

#### Facilities Division (FD)

FD maintains configuration control of the sanitary, storm, and industrial waste systems. No changes to a sewer system are to be made without the concurrence of the FD, see GRC P7010.002 "Configuration Control of Facilities". FD maintains and operates the systems.

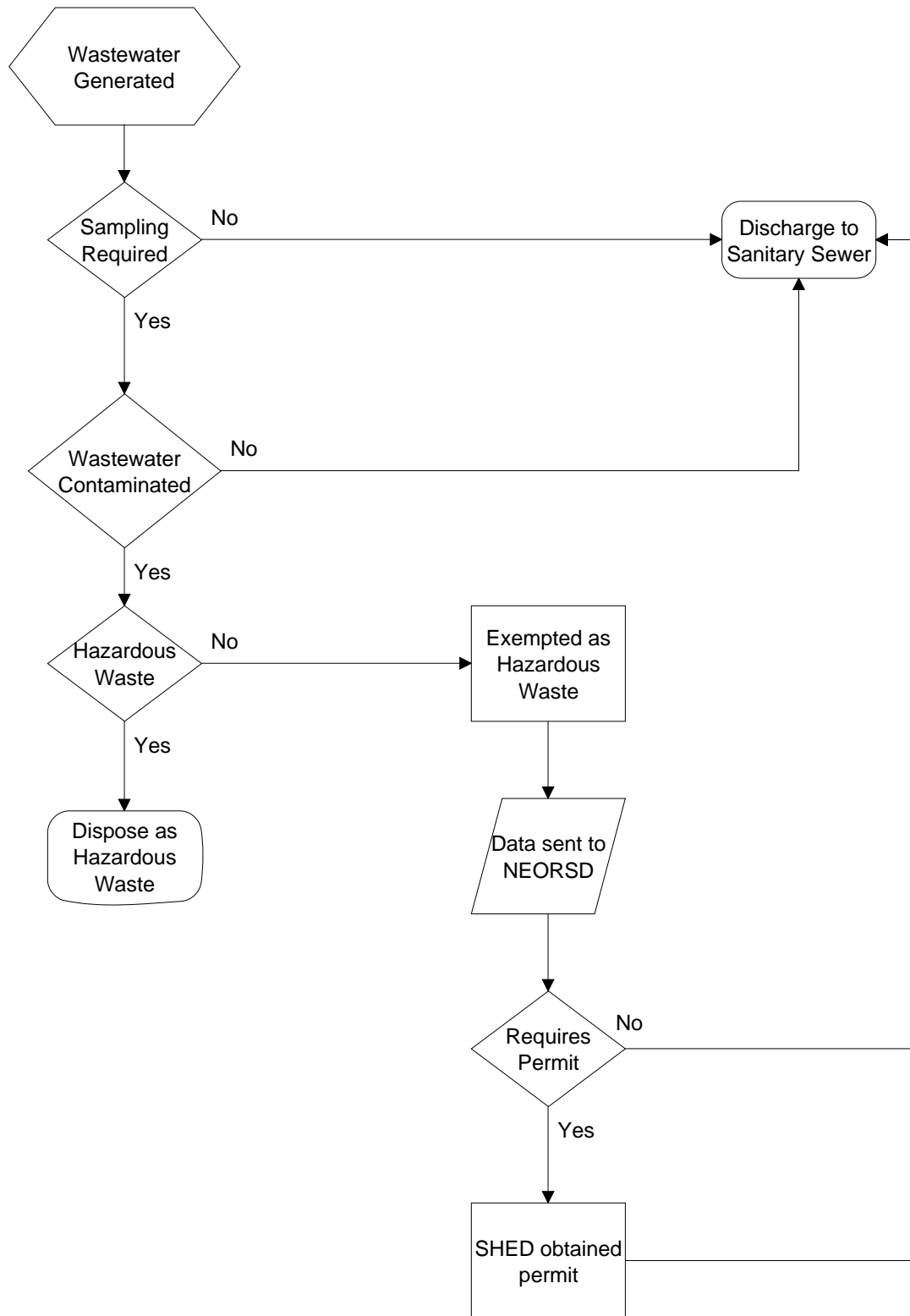
At Lewis Field, FD is responsible for the physical operation and maintenance of the process water systems and the industrial waste system. At Plum Brook, the PBMO is responsible for the physical operation and maintenance of the sanitary sewer systems and process water systems.

FD must ensure that contractors plan and implement Best Management Practice at construction sites.

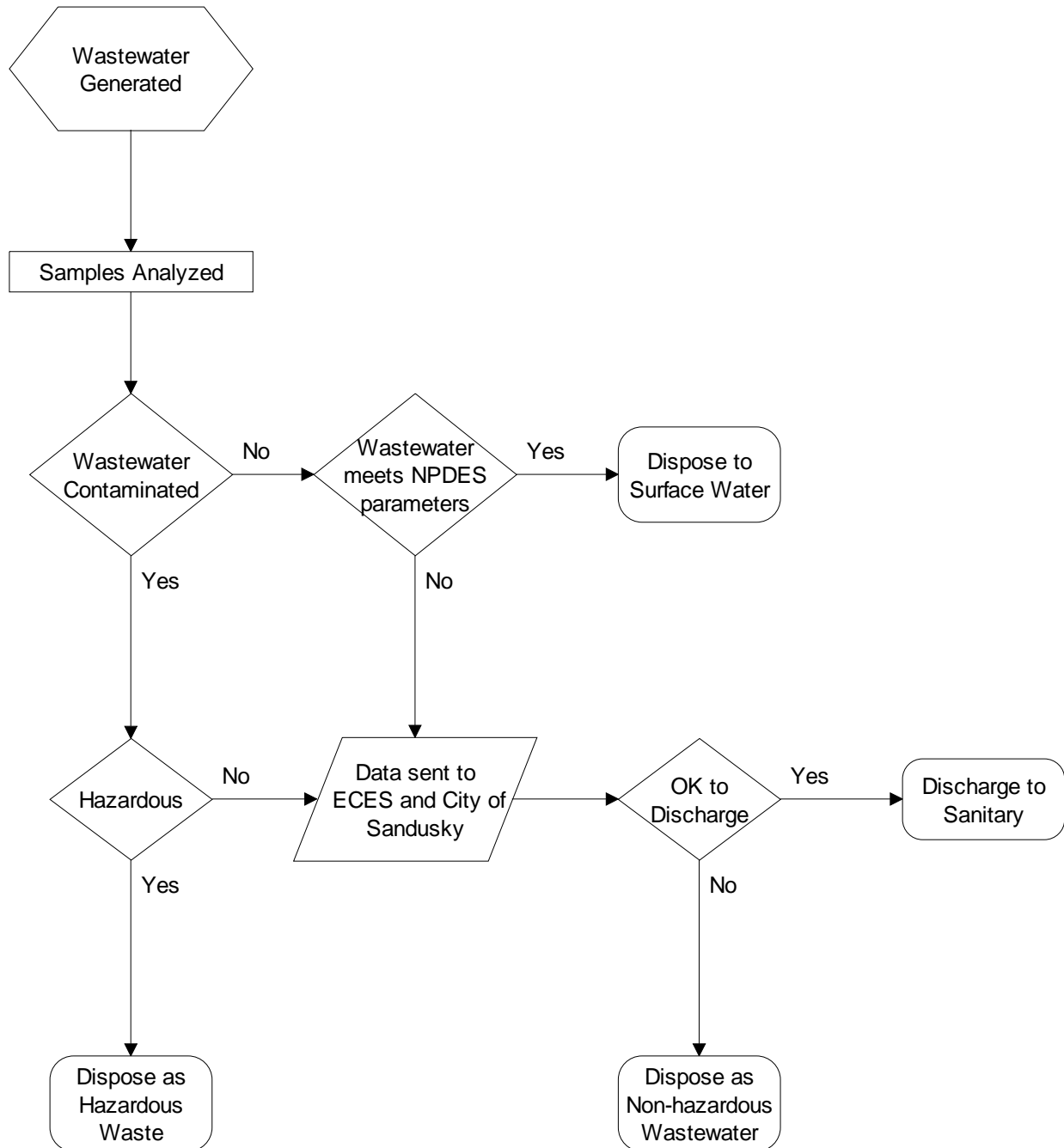
#### Glenn Dispatch/Plum Brook Comms Center

At Cleveland, Emergency Dispatch is the focal point of communications in initiating the emergency spill containment and cleanup plans. At Plum Brook the Comms Center performs this function.

***Disposal of Wastewater  
GRC - Lewis Field***



***Disposal of Wastewater  
GRC - Plum Brook Station***



## RECORDS

- NPDES Permit
- NPDES Permit Monthly Reports

## REFERENCES

- Federal Water Pollution Control Act
- Executive Order No. 12088, Federal Compliance with Pollution Control Standards, October 13, 1978
- Toxic Substances Control Act
- Title 40, Code of Federal Regulations, Part 112, Oil Pollution Prevention, December 11, 1973.
- Spill Prevention Control and Countermeasure Plan for Lewis and Plum Brook
- Title 40, Code of Federal Regulation, Part 265 Subpart D, Contingency Plan and Emergency Procedures.
- Title 40, Code of Federal Regulation, Part 300.33, National Oil and Hazardous Substances Pollution Contingency Plan.
- Lewis and Plum Brook Station Contingency Plans
- Title 10, Code of Federal Regulations, Part 20
- Emergency Preparedness Plan
- Glenn Storm Water Pollution Prevention Plan

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